

Women and Ischemia Syndrome Evaluation (WISE) Diagnosis and Pathophysiology of Ischemic Heart Disease Workshop

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Session 1

1. Topic and Author

Office Based Technology for Early Detection of Arteriosclerosis
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2. Where we stand in 2002. Overview/rationale for inclusion of topic.

Unfortunately, the first presentation of heart disease among many individuals is death. Moreover, traditional diagnostic tests to identify persons with cardiovascular disease (CVD) emphasize advanced stages of disease. Serum markers enhance risk prediction, yet many individuals with coronary events do not have abnormal traditional risk factors. The noninvasive assessment of subclinical atherosclerosis is feasible and has been shown to predict future cardiovascular events in many studies. Identification and stratification of individuals at risk for CVD may help to guide the aggressiveness of risk reduction therapy. Technologies to detect atherosclerosis in its earliest stages have not been widely used or studied in the practice setting. Non-invasive tests such as EBCT, carotid ultrasound, MRI and endothelial function may have advantages over invasive technologies but also require sophisticated equipment and significant expertise to evaluate and interpret. Measurement of arterial compliance may be a useful method to detect individuals with subclinical atherosclerosis that avoids the expense, inconvenience and risks associated with other tests aimed to stage CVD. Emerging evidence suggests that decreased arterial compliance is associated with hypertension, hypercholesterolemia, and several other CVD risk factors. An example of an office-based technology to assess arterial compliance is the Vasogram Test. Using segmental plethysmography, the PC based system non-invasively integrates the properties associated with atherosclerosis of the lower extremity. A recent multi-center study in more than 300 subjects with a broad range of risk based on clinical diagnosis and the Framingham score, has evaluated the reliability and accuracy of the method against MRI of the aorta, stress echocardiogram and ultrafast CT scan of the coronaries. Preliminary data suggest the technology is as accurate, or more accurate in women as in men.

3. Current challenges and the most important issues for future research

The cost-effectiveness and added value of office-based technologies over traditional methods to detect cardiovascular disease needs to be determined. In addition, assessment of the impact of information obtained regarding the early detection of atherosclerosis, and its impact on risk factor management should be the next priority area of research. Ultimately, the impact of intervention on clinical outcomes resulting from early detection will need to be evaluated.

4. Current challenges in the areas of communicating messages to health care community, patients and the public

The public and the medical profession need to understand the potential limitations and potential benefits of technologies to detect atherosclerosis in its earliest stages.

5. Translating new findings to improved diagnosis and treatment/saving lives.

If office based technology to detect early evidence of increased atherosclerotic burden is validated, and feasible to implement broadly, risk reduction therapy may be more appropriately targeted to persons most likely to benefit because they are at higher risk for cardiovascular events. Because nearly 40% of first cardiovascular events are fatal, early detection and intervention are of critical importance to save lives.

References.

Hunziker PR, et al. Bedside Quantification of Atherosclerosis Severity for Cardiovascular Risk Stratification: A Prospective Cohort Study. J Am Coll Cardiol 2002;3:702-9.

